

Abstract

A method for triggering a heterodyne interferometer having two acousto-optical modulators in separate light paths, a receiver generating an analog signal and a downstream A/D converter converting the analog signal into a digital signal is described; in this method, the one acousto-optical modulator is triggered at a modulation frequency f_1 and the other acousto-optical modulator is triggered at another modulation frequency f_2 , the difference between modulation frequencies f_1 and f_2 forming a heterodyne frequency f_{Het} and the analog signal being converted into the digital signal in the A/D converter at sampling frequency f_a .

In such a heterodyne interferometer, a fixed ratio of modulation frequencies is maintained, and they are prevented from shifting due to aging and drift by forming at least two of the frequencies of modulation frequencies f_1 , f_2 and sampling frequency f_a from a fundamental frequency f_{quartz} of a common oscillator.

As a result, it is also possible for sampling frequency f_a to be in a fixed phase ratio to the differential frequency of modulation frequencies f_1 , f_2 , of heterodyne frequency f_{Het} . Measurement accuracy is increased because sampling is performed at a constant phase, independently of drift and aging.